

**SOUTH TROY BROWNFIELDS SAMPLING**  
**HEALTH AND SAFETY PLAN (HASP)**

***Prepared For:***

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## **1.0 GENERAL INFORMATION**

This Health and Safety Plan (HASP) is for use during the Phase II sampling to be conducted as part of the South Troy Brownfields Assessment Demonstration Pilot Project that is being undertaken by the City of Troy with funding by the United States Environmental Protection Agency. Three Areas Of Concern (AOCs) have been selected as part of a thorough process to select areas for environmental sampling within a study area that included 56 original parcels. The results of this sampling will be used by the City to prioritize one site for recommendations for remedial action.

This HASP specifies that during surface sampling, sampling from excavations, and sampling during drilling, hazardous substances and conditions known or suspected to be present on the site must be identified and measures must be taken to ensure that the hazardous substances or conditions do not adversely impact the health and safety of personnel conducting field activities. This HASP is intended to identify potential hazards and appropriate precautions for work at sites that are not considered hazardous waste sites as defined by OSHA 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response). Anticipated hazards addressed by this HASP are well defined and generally are under reliable control.

All field personnel working on this project must familiarize themselves with this HASP, acknowledge understanding of this plan, and abide by its requirements.

In general, subcontractors are responsible for complying with all regulations and City of Troy and STERLING policies applicable to the work they are performing. Sterling Environmental Engineering, P.C. (STERLING) personnel can and must stop work by a contractor who is observed to not be following required health and safety procedures.

## **2.0 SCOPE OF WORK**

This project involves the following scope of work:

- Conducting a Phase II subsurface investigation of three (3) Areas of Concern (AOC) in South Troy, New York. The areas are:
  - The Former Scolite Property
  - The County IDA Property
  - The King Fuels North / The Alamo Property (Site #43)

Figure 1 of the Site-Specific Brownfields Sampling, Analysis, and Monitoring Plan (SAMP), Brownfields Assessment Demonstration Pilot, South Troy Brownfields, New York shows the site locations of these AOCs.

The scope of work for this sampling effort is set forth in the SAMP prepared by STERLING.

### **3.0 DESIGNATION OF RESPONSIBILITIES**

The responsibility for implementing this HASP is shared by the Project Manager (Mark P. Millspaugh, P.E.), the CHSO (Rodney L. Aldrich, P.E.), and the SHSO (Peter J. Kelleher, P.E.).

The Project Manager will recommend policy on all matters and will provide the necessary resources to conduct the project safely.

The CHSO has overall Corporate responsibility for developing safety procedures and training programs, and is the final decision point for determination of health and safety policies and protocols for all projects.

The SHSO, with guidance from the CHSO, is responsible for establishing operating standards and coordinating all safety and technical activities occurring at the site. Specifically, the SHSO is responsible for:

1. Ensuring the availability, use, and proper maintenance of specified personal protective, decontamination, and other health or safety equipment.
2. Maintaining a high level of safety awareness among other team members and communicating pertinent matters to them promptly.
3. Ensuring that all field activities are performed in a manner consistent with STERLING policy, the USEPA project policy for this project, and this HASP.
4. Monitoring for dangerous conditions during field activities.
5. Ensuring proper decontamination of personnel and equipment.
6. Coordinating with emergency response personnel and medical support facilities.
7. Initiating immediate corrective actions in the event of an emergency or unsafe condition.
8. Notifying the Project Manager and CHSO promptly of any emergency, unsafe condition, problem encountered, or exception to the requirements of this HASP.
9. Recommending improved health and safety measures to the CHSO.

The SHSO has the authority to:

1. Suspend field activities or otherwise limit exposures if the health or safety of any person appears to be endangered. This authority includes suspension of work due to adverse weather conditions, fire or other emergency.
2. Direct STERLING or subcontractor personnel to alter work practices that are deemed not properly protective of human health or the environment.
3. Suspend an individual from field activities for infraction of the requirements in this HASP.

However, the presence of the SHSO shall in no way relieve any person or company of its obligations to comply with the requirements of this Plan and all applicable Federal, State and local laws and regulations.

Everyone involved in this project must be familiar with and conform to the safety protocols prescribed in this HASP, and communicate any relevant experience or observations to the SHSO to ensure that these valuable inputs improve overall safety. Individual field team members are the key elements in ensuring health and safety compliance at the project site. Every individual field team member is considered responsible for implementing and following this HASP.

<b>TABLE 3-1 KEY PERSONNEL</b>		
<b>Title of Officer</b>	<b>Name</b>	<b>Telephone #</b>
Project Manager	Mark P. Millspaugh, P.E.	Office: 518/456-4900
Corporate Health and Safety Officer (CHSO)	Rodney L. Aldrich, P.E.	Office: 518/456-4900 Cell: 518/441-8872
Site Health and Safety Officer(s) (SHSO)	Peter J. Kelleher, P.E.	Office: 518/456-4900 Cell: 518/369-9041
Client's Representative	Walt VanDeloo, P.E., Troy City Engineer	518/270-4577

#### **4.0 SITE SPECIFIC HEALTH AND SAFETY CONCERNS**

##### **4.1 Site History and Setting**

The history of each of the AOCs is thoroughly covered in the SAMP and everyone subject to this HASP should understand the history of each AOC.

##### **4.2 Site Concerns**

All work on this project will be in areas that have been previously characterized for health and safety risks or where potential exposures are defined and well controlled.

The primary health hazards at this site are derive from the potential for exposure to contaminated soil or groundwater during surface sampling, excavating soil and drilling.

Other health hazards stem from the use of equipment and from working near excavations such as holes, pits or trenches.

The SHSO will routinely conduct air monitoring with a 10.6ev photoionization detector (PID) and with colorimetric indicator tubes, which will indicate levels of volatile organic compounds (VOCs). If vapors are released from the ground opening to the atmosphere, the concentration is expected to dissipate rapidly. If soils are encountered where the VOC level in the immediate vicinity of the soils exceeds the action level above which Level C protection must be worn, while the operator of an involved excavator is not exposed above the action level, those in the area of exposure may wear appropriate protective equipment in order to gain samples at the edge of the zone of contamination, but further excavation in that area will be ceased.

Exposure to excessive levels of nuisance particulates and crystalline silica, a major component of various soil types and an identified carcinogen, will be minimized by applying a water spray to the immediate work area to suppress the dust. If dust levels are excessive due to drilling activities or other activities that generate visible dust, water spray will be used to control dust.

The minimum standard protective equipment for this project is specified in Tables 4-3 and Table 4-4 (see Section 4.5).

### 4.3 Chemicals Potentially Present

Table 4-1 below lists the hazardous substances that are known or suspected to be present at the site, and Table 4-2 lists the published airborne exposure limits for those substances.

Unknown or unexpected materials of a hazardous nature may be encountered during site activities. No work will be conducted if field measurements or observations indicate that there is potential uncontrolled exposure to undefined hazards, or that exposures may exceed protection afforded by the requirements in this HASP.

<b>Table 4-1</b> <b>Hazardous Substances Known or Suspected to be Present</b>				
<b>Substance</b>	<b>Known to be Present or Suspected</b>	<b>Media Present</b>	<b>Expected Concentration Range</b>	<b>Quality and Quantity of Available Data</b>
Lead	Suspected: Former Scolite AOC	Soil	Unknown	Level 3
Arsenic	Suspected: County IDA AOC King Fuels North / "The Alamo" AOC	Soil/Groundwater	<5 to 120 ppm in soil	Level 2 (from site adjacent to King Fuels North/"The Alamo")
VOCs and Semi-VOCs	Suspected: Former Scolite AOC County IDA AOC King Fuels North / "The Alamo" AOC	Soil/Groundwater	0 to pure coal tar	Level 2 (from site adjacent to County IDA AOC)
PCBs	Suspected: Former Scolite AOC	Soil	Unknown	Level 3

**Level 1:** Considerable data available and substantial level of comfort that data is reliable and adequately characterizes expected site conditions.

**Level 2:** Limited data or data of uncertain representativeness.

**Level 3:** No data, or data not considered representative.

BTEX – Benzene, Toluene, Ethylbenzene, Xylene

MTBE – Methyl,tertbutylether

ppb – parts per billion; 1,000 ppb = 1 part per million (ppm)

<b>Table 4-2</b> <b>Published Airborne Exposure Limits</b> <b>or Odor Thresholds in Parts Per Million (PPM)</b> <b>for Substances Known or Suspected to be Present</b>						
<b><u>Substance</u></b>	<b><u>OSHA PEL/STEL/C</u></b>	<b><u>NIOSH REL</u></b>	<b><u>ACGIH TLV/STEL</u></b>	<b><u>IDLH</u></b>	<b><u>Cancer Causing</u></b>	<b><u>Range of Odor<sup>3</sup> Thresholds</u></b>
Benzene <sup>1</sup>	10/25C	0.1	10	3000	Yes	0.78-160.0
Toluene <sup>1</sup>	200/300 C	100	50 S	2000	No	0.021-69.0
Ethylbenzene <sup>1</sup>	100	100	100/125	2000	No	0.92-0/60
Xylene <sup>1</sup>	100	100	100/150	1000	No	0.081-40.0
Crystalline <sup>2</sup> Silica	*	*	*	None	Yes	None
Arsenic	0.010	0.002	10	100	Yes	No Data
Lead	0.05	< 0.1	0.05	700	No	None
PCB	0.1	0.001	1.0	10	Yes	Unknown

\* Crystalline Silicas:

CristObalite	0.05 mg/M <sup>3</sup>
Quartz	0.1 mg/M <sup>3</sup>
Tridymite	0.05 mg/M <sup>3</sup>
Tripoli	0.1 mg/M <sup>3</sup>

<sup>1</sup> Volatile organic compound constituents of coal tar.

<sup>2</sup> Classified a carcinogen by NIOSH.

<sup>3</sup> American Institute Hygiene Association.

“S” skin absorption.

Definitions of PEL, REL, STEL, TLV, C and IDLH are discussed below:

PEL            The Occupational Safety and Health Administration’s (OSHA) Permissible Exposure Limit for airborne contaminants as a time-weighted average for an 8-hour work shift, as listed in 29 CFR 1910.1000.

REL            The National Institute for Occupational Safety and Health’s (NIOSH) Recommended Exposure Level for a work shift.

STEL          A Short Term Exposure Limit as a 15-minute time-weighted average. (No more than four exposures per shift).

TLV            The American Conference of Governmental Industrial Hygienists’ (ACGIH) Threshold Limit Value for airborne concentrations to which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effects.

C                Ceiling Concentration – The concentration that should not be exceeded during any part of the working exposure.



IDLH        The Immediately Dangerous to Life and Health maximum concentration from which one could escape within 30 minutes without experiencing any escape–impairing or irreversible health effects. (Note: Level C air-purifying respirators do not adequately protect an individual exposed to these concentrations.) These IDLH values were established by NIOSH and have not been peer reviewed. Caution is recommended with their application.

#### 4.4        Excavator and Drill Rig Operations

To conduct excavating, a track hoe or backhoe excavator will be used. To conduct soil borings, a hollow-stem auger drilling rig will be used. Working with or near this equipment poses many potential hazards, including being struck by or against equipment, or pinched/caught by equipment, potentially resulting in serious physical bodily harm.

In particular, the following precautions will be used to help prevent injuries and accidents:

- Excavator and drill rig brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, tires, horn, and other safety devices will be inspected prior to the initial mobilization and checked routinely throughout the project.
- Excavator and drill rig cabs will be kept free of all nonessential items and all loose items will be secured.
- Excavators and drill rigs will be provided with necessary safety equipment, including seat belts.
- Drill rig cables and auger flight connections will be checked for signs of, or actual, wear. Frayed or broken cables or defective connections will be replaced immediately.
- Parking brakes will be set before shutting off any heavy equipment or vehicle.

All employees will be briefed on the potential hazards prior to the start of the job.

#### 4.5        Personal Protective Equipment

Table 4-3 indicates the general levels of personal protective equipment (PPE) that may be used on-site. Site and task specific levels of PPE assigned according to the chemicals of concern are listed in Table 4-4.

<b>Table 4-3</b>		
<b>GENERAL PROTECTION LEVELS</b>		
<b>Protective Equipment</b>	<b>Protection Levels</b>	
	<b>C</b>	<b>D</b>
1. Air-purifying respirator	X	
2. Chemical-resistant disposable overalls		
3. Chemical-resistant outer gloves	X	
4. Disposable gloves	X	X
5. Overboots (chemically resistant)	X	
6. Leather safety shoes or boots	X	X
7. Safety glasses, goggles, or face shield	X	X
8. Hard Hat	X	X
9. Coveralls	X	X

Table 4-4 lists the tasks and chemicals of concern on the site, along with the specific protection level and PPE materials of construction for each.

<b>Table 4-4</b> <b>Task Specific Personal Protective Equipment (PPE)</b>					
<b>Task</b>	<b>Chemicals of Concern</b>	<b>PPE Level</b>	<b>Respirator Type</b>	<b>Gloves</b>	<b>Coveralls</b>
Surface Soil Sampling	BTEX, Semi-VOCs, PP metals, PCBs	D (low levels expected)	None	Chemical resistant/surgical	Disposable Tyvex recommended
Excavation Soil Sampling	BTEX, VOCs, Semi-VOCs, PP metals, PCBs	D (low levels expected or cease at thresholds)	None	Chemical resistant/surgical	Disposable Tyvex recommended
Soil Borings	BTEX, VOCs, Semi-VOCs, PP metals, PCBs	D (low levels expected or cease at thresholds)	None	Chemical resistant/surgical	Disposable Tyvex recommended

CS – Crystalline Silica

STERLING does not anticipate conducting any site work in Level B or A PPE and very limited work in Level C. If air monitoring results require PPE upgrades from Level D, then only appropriate STERLING, City, or Subcontractor employees medically qualified, trained and experienced in the use and limitations of air purifying or supplied air respirators will use these for the task after the readings are reviewed with the CHSO and Project Manager. Only air purifying High-Efficiency Particulate Air (HEPA) filter, which is a filter capable of removing particles of 0.3 microns or larger from air at 99.97% or greater efficiency, respirators should be used when exposure to dust is a potential risk.

Unless the SHSO directs otherwise, when respirators are used for organic vapors or particulates the cartridges should be changed after eight (8) hours of use, or at the end of each shift, or when any indication of breakthrough or excessive resistance to breathing is detected. OSHA regulations require a Respiratory Protection Program for companies that require employees to enter areas where respirators are required and such Respiratory Protection Programs must address the requirements for replacement of cartridges. STERLING and its subcontractors will have the required Respiratory Protection Program and STERLING will maintain its written program and records at its office as required by OSHA regulations.

#### 4.6 Emergency

A first aid kit, portable eyewash and vehicle will be kept in close proximity to the sampling effort at each AOC. If the SHSO determines that a potential for fire exists, a fire extinguisher rated 20A-B-C (or higher) will be kept in or at the perimeter of each AOC. Employees will be trained in use of emergency supplies.

#### **4.7 Suspected Safety Hazards**

Suspected safety hazards include those inherent with the operation of heavy equipment such as drilling rigs or excavators, and proximity to excavations. Inspections to ensure appropriate guards are in place and the use of lockout and tagout procedures during maintenance of this equipment will control these inherent hazards. Personal protective equipment including hard hats, safety shoes and eye protection will be worn to augment other safety precautions.

Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, drilling rigs and excavators must not operate closer than 30 feet to any overhead lines, measured directly between any part of the equipment and the lines themselves, except if site sampling requirements require, and only if a special written work plan has been developed by STERLING's subcontractor or other equipment operator that includes special measures designed to mitigate the risks and reviewed and approved by written signature by the SHSO. Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, equipment or machines shall be operated proximate to power lines only in accordance with 29 CFR 1926.550(a)(15) even under the special written work plan noted above.

Care must be taken to ensure loose clothing does not get tangled in any moving equipment while borings are being advanced and while the monitoring wells and piezometers are being installed.

There may be slip or trip hazards associated with rough, slippery or elevated work surfaces at the site.

There is also the possibility of organic vapors being encountered during the drilling operations due to the presence of petroleum contaminated soils. The SHSO will use continuous monitoring instruments that measure total volatile hydrocarbons while each task is being conducted to determine ambient levels of contaminants.

All excavations will be maintained by City, STERLING, and STERLING's subcontractor's employees to prevent access by unauthorized persons and will be filled by the end of the same work day that they are created. Absolutely no one will be permitted in excavations, except the operator of equipment where the operator is always located above the level of the surrounding earth. If equipment breaks down within the excavation, the equipment will have to be towed out of the excavation by other equipment. All subsurface samples will be obtained by operation of the excavating equipment to bring the sample to an area away from the excavation.

#### **4.8 Adverse Weather**

Drilling or excavating is dangerous during electrical storms. All field activity must terminate when thunderstorms are evident. Extreme heat and cold, ice and heavy rain can produce unsafe conditions for drilling work. Such conditions, when present, will be evaluated on a case-by-case basis to determine if work shall terminate.

#### **4.9 Fire and Explosion**

The use of an excavator, drill rig, etc. that are gasoline or fuel powered presents the possibility of encountering fire and explosion hazards.

STERLING and all STERLING subcontractors will be required to store diesel fuel and gasoline in metal cans with self-closing lids and flash arrestors.

Prior to the start of any subsurface work, all underground utilities and piping that may pose a potential hazard will be identified and located. The DigSafelyNewYork, Inc. center or equivalent service will be called and underground utilities will be located and marked. Also, at each AOC, the location of privately owned utility lines will be ascertained.

In the event a pipe or line is struck, work will stop and the emergency response plan will be implemented.

#### **4.10 Confined Space Entry**

Confined space entry is prohibited under this project.

“Confined Space,” means a space that:

- 1) is large enough and so configured that an employee can bodily enter and perform assigned work;
- 2) has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
- 3) is not designed for continuous employee occupancy.

#### **4.11 Site Sampling Work Zones**

One of the basic elements of an effective site sampling program is the delineation of work zones at each sampling site. The purpose of establishing work zones is to:

- Reduce the accidental spread of hazardous substances by workers or equipment from the contaminated areas to the clean areas;
- Confine work activities to the appropriate areas, thereby minimizing the likelihood of accidental exposures;
- Facilitate the location and evacuation of personnel in case of an emergency; and
- Prevent unauthorized personnel from entering controlled areas.

Although a site may be divided into as many zones as necessary to ensure minimal employee exposure to hazardous substances, this plan uses the three most frequently identified zones in similar projects. These zones are the Exclusion Zone (sometimes referred to by others as the “hot zone”), the Decontamination Zone, and the Support Zone (sometimes referred to by others as the “clean zone”). Movement of personnel and equipment between these zones should be minimized and restricted to specific access control points to minimize the spreading of contamination.

#### **4.12 Exclusion Zone**

The Exclusion Zone is the area where contamination is either known or expected to occur and where the greatest potential for exposure exists. For the three AOCs for which sampling is planned, no contamination is actually known to exist on the properties. However, the greatest potential for exposure exists where borings and drilling activities are planned. Therefore, the following protective measures will be taken in the Exclusion Zone.

Unprotected onlookers will be restricted from the sampling site such that they are 25 feet upwind or 50 feet downwind of excavation or drilling activities.

Those conducting activities and sampling in the Exclusion Zone will wear the applicable Personal Protective Equipment (PPE). The actions to be taken and PPE to be worn in the Exclusion Zone if VOCs are determined with the PID to be above background are described in Sections 4.2 and Table 7.

#### **4.13 Decontamination Zone**

A Decontamination Zone will be established between the Exclusion Zone and the Support Zone, and will include the personnel, equipment and supplies that are needed to decontaminate equipment and personnel. The size will be selected by the SHSO to be sufficient to conduct the necessary decontamination activities. Personnel and equipment in the Exclusion Zone must pass through this zone before leaving or entering the Support Zone. The necessary decontamination must be completed in this zone and the requirements are described in Section 6.0 below. This zone should always be established and maintained upwind of the Exclusion Zone.

#### **4.14 Support Zone**

The support zone will surround the decontamination zone and exclusion zone. Break areas, operational direction and support facilities will be located in this area. Eating, smoking and drinking will be allowed only in this area.

#### **4.15 Natural Hazards**

Work that takes place the natural environment may be affected by plants and animals which are known to be hazardous to humans. Spiders, bees, wasps, hornets, ticks, poison oak and poison ivy are only some of the hazards that may be encountered. Individuals who may potentially be exposed to these hazards should be made aware of their existence and instructed in their identification. Emergencies resulting from contact with a natural hazard should be handled through the normal medical emergency channels. Individuals who are sensitive to these types of "natural" hazards should indicate their susceptibility to the SHSO.

#### **4.16 Noise Hazards**

Work on-site may involve the use of heavy equipment such as a drill rig, geoprobe, jack hammer, compressor, and generator. The unprotected exposure of site workers to this noise during field activities can result in noise induced hearing loss. The SHSO will monitor the noise exposure for the initial trip and determine whether noise protection is warranted for each of the team members. The SHSO will ensure that either ear muffs or disposable foam earplugs are made available to all personnel and are used by the personnel in the immediate vicinity of the field operation as required.

#### **4.17 Slip, Trip and Fall Hazards**

The sampling sites could contain a number of slip, trip and fall hazards for site workers, such as:

- Holes, pits, or ditches
- Excavation faces
- Slippery surfaces
- Steep grades
- Uneven grades
- Snow and ice
- Sharp objects

All personnel are instructed to keep back, and must keep back, three (3) feet from the top edge of excavation faces, unless operating equipment that is designed to safely cross the excavation face.

Drill auger sections will be stored on the transport vehicle as long as possible to avoid creating a trip hazard. Drill auger sections and other tools will be stored together in neat arrangements convenient to the drill but sufficiently distant from the immediate area around the drill to minimize trip hazards.

Site personnel will be instructed to look for potential safety hazards and immediately inform the SHSO regarding any new hazards. If the hazard cannot be immediately removed, actions must be taken to warn site workers about the hazard.

#### **4.18 Modifications To This Plan**

Requirements and guidelines in this HASP are subject to modification by the Project Manager, the Corporate Health and Safety Officer (CHSO), or the Site Health and Safety Officer (SHSO) in response to additional information that may come to be known regarding the potential for exposure to hazards.

### **5.0 EMERGENCY ACTION PLAN**

On-site personnel will use the following standard emergency procedures. The SHSO will be notified of any on-site emergency and be responsible for ensuring that the appropriate procedures are followed and the CHSO and Project Manager are notified. A first aid kit, eye wash unit, which can provide a minimum flow rate of 0.4 GPM for 15 minutes, and a fire extinguisher will be readily available to field personnel. Questions regarding procedures and practices described in this Plan should be directed to the CHSO.

#### **5.1 Notification**

Any symptoms of adverse health, regardless of the suspected cause, are to be reported to the SHSO immediately and to the CHSO promptly.

Upon the occurrence of an emergency, including an unplanned chemical release, fire or explosion, personnel will be alerted and the area evacuated immediately. Re-entry to the site will be limited to that necessary to assist injured personnel, fire fighting or spill control, and only after appropriate protective equipment is donned.

The following alarm system will be utilized to alert personnel to evacuate the restricted area:

_____	Audible Alarm; Airhorn (optional)
<u>  X  </u>	Direct Verbal Communication (10 employees or less)
_____	Radio Communication or Equivalent (Remote Sites)
<u>  X  </u>	Other: Portable or Fixed Telephone Available On-Site

The following standard hand signals will also be used as necessary:

Hand gripping throat	Can't breathe/Out of Air
Grip co-worker's wrist	Leave area immediately
	No Debate!
Hands on top of head	Need assistance
Thumbs up	Yes/Okay
Thumbs down	No/Problem

Upon activation of the alarm, employees will proceed to the designated assembly area. The designated assembly area will be determined on a daily basis by the SHSO and updated as necessary depending upon work conditions, weather, air monitoring, etc. The location of the designated assembly area will be clearly marked and communicated to employees daily or upon relocation of the area. Employees gathered in the designated assembly area will remain there until their presence has been noted. A comparison of employees against the daily restricted area access roster will be made as necessary to ensure all employees have been properly evacuated and accounted for.

Employees are not expected to remain in the restricted area upon activation of the evacuation alarm.

## **5.2 Personal Injury**

If anyone within a work area is injured and cannot leave the restricted area without assistance, emergency medical services will be notified and appropriate first aid will be initiated by local emergency medical services.

## **5.3 Fire/Explosion**

Upon the occurrence of a fire beyond the incipient stage (where site personnel could respond to extinguish), or an explosion anywhere on the site, the fire department will be alerted and all personnel moved to a safe distance from the involved area.

## **5.4 Other Equipment Failure**

If any other equipment at the work site fails to operate properly, the Project Manager and/or SHSO will determine the effect of this failure on continuing operations. If the failure affects the safety of personnel (e.g., failure of monitoring equipment) or prevents completion of the planned tasks, all personnel will leave the work area until appropriate corrective actions have been taken.

## **5.5 Emergency Services**

<u>Emergency Services</u>	<u>Telephone Number</u>
Owners:	
City of Troy	(518) 270-4604
Rensselaer County IDA	(518) 270-2988
Fire Department	911
Police Department	911
Ambulance	911
Samaritan Hospital	(518) 271-3300 or (518) 271-3424 for emergency room
Poison Control Center	800/282-3171
Chemical Emergency Advice (CHEMTREC)	800/424-9300

City of Troy Police Headquarters  
City of Troy Fire Department

(518) 270-4652 or 911  
(518) 270-4471 or 911

A map showing the preferred route to the nearest emergency health care facilities is attached as Figure 1; and written directions to the nearest hospital is also attached behind the map.

## **5.6 Record Keeping**

STERLING shall maintain records of reports concerning occupational injuries and illnesses in accordance with 29 CFR 1904.

## **6.0 DECONTAMINATION AND DISPOSAL**

### **6.1 Prevention of Contamination**

The SHSO will make all site personnel aware of the potential for contamination. The following procedures will be established to minimize contact with waste:

- Workers will not walk through areas obvious of contamination;
- Workers will not directly touch potentially hazardous substances;
- Workers will wear gloves when working if work may involve touching soil or waste;
- Workers will wear disposable outer garments where appropriate; and
- Excavated soils will be placed on plastic sheeting and returned to the borehole or excavation.

### **6.2 Decontamination Methods**

Significant subsurface contamination at this site is not anticipated, however, all personnel, clothing, and equipment leaving designated contaminated areas of the site must be decontaminated, as presented in Appendix A, Equipment Cleaning and Decontamination Procedures. Decontamination of equipment will be the responsibility of STERLING or STERLING's subcontractor.

## **7.0 AMBIENT AIR MONITORING**

The SHSO will be responsible for the identification and qualification of any airborne contaminants. Since coal tar constituents may include volatile organic compounds (VOCs), a portable direct reading instrument such as a PID will be used to screen work areas to determine if elevated levels of the VOCs are generated. Benzene, a potential coal tar constituent, is a carcinogen which has an existing OSHA permissible exposure limit of 10 ppm. Should PID readings in the workers breathing zone indicate VOC levels of 10 ppm or greater than background on the PID, then the SHSO shall use Drager Colorimetric indicator tubes for benzene and a hand pump to determine the actual benzene concentration. Personnel should not collect samples if readings are above 10 parts per million (ppm) on the PID and above 1 ppm for benzene (the OSHA PEL) on a colorimetric indicator tube, unless the samplers and, if present drillers are utilizing Level C protection, and an excavator operator, if present, is not exposed to an atmosphere where the VOC level is above 10 ppm and the benzene level is not above 1 ppm. Whenever an atmosphere where the VOC level is above 10 ppm or the benzene level is above 1 ppm is encountered, the sampling effort will be truncated to get the soil sample from that depth in that area and then further drilling or excavating in that area will be suspended, and the boring or excavation will be filled in immediately.



Particulates generated from drilling and excavating activities could contain crystalline silica particles and such particles have been identified by NIOSH as carcinogenic. No monitoring for crystalline silica is planned since the dust generation at drilling or excavating activities will be suppressed by spraying the dusty area with water.

A combustible gas meter will also be used to determine whether explosive vapors are being generated during drilling and excavation operations. Readings on a combustible gas monitor must be below 10% of the lower flammable limits for the drilling or excavations to continue. Elevated combustible gas, PID and benzene readings above the action levels (see Table 7) will require modification of the drilling operations and/or upgrade in personal protective equipment (PPE). Should an upgrade in PPE include respiratory protection, only workers medically qualified to wear respirators and trained in proper use and limitation of the respirator, can proceed with the project.

Table 7, Air Monitoring Action Levels, contains actions to be taken for field measurements.

<b>Table 7</b> <b>Air Monitoring Action Levels</b>		
<b><u>Instrument</u></b>	<b><u>Action Level</u></b>	<b><u>Action</u></b>
PID (10.6.ev)	<u>Continuous</u> readings of background to 9 ppm over	Remain in level D PPE.
PID	<u>Continuous</u> reading of 10 to 100 ppm above background	Level D PPE but screen with Drager detection tube for benzene. PID readings must be taken at any excavator operator location. If benzene detected > 1 ppm upgrade to Level C and wear an organic vapor (OV) cartridge/air purifying respirator (APR). Investigate source.
PID	<u>Continuous</u> reading over 100 ppm background	<u>Stop Work</u> . Reevaluate work conditions and procedures. Contact CHSO prior to continuing for authorization.
Drager Tubes: Benzene	1-10 ppm	Upgrade PPE to Level C with OV/APR.
Drager Tubes: Benzene	>10 ppm	<u>Stop Work</u> . Reevaluate work conditions and procedures. Contact CHSO prior to continuing for authorization.
Combustible Gas Indicator	<u>Continuous</u> reading of 0% to 1% lower explosive level (LEL).	Remain in Level D PPE. If no benzene present, assume source is methane. Continuously monitoring LEL.
Combustible Gas Indicator	<u>Continuous</u> reading of 1% to 10% LEL	Level D unless benzene is present. Investigate source and ventilate, if possible. SHSO may require upgrade to Level C PPE. Contact CHSO prior to continuing for authorization.

Combustible Gas Indicator	Continuous reading >10% LEL	<u>Stop Work.</u> Evacuate work area and ventilate source of combustible gas, if possible. Contact CHSO prior to continuing for authorization.
None – Direct observation	Visible dust	Suppress by spraying the dusty area with water.

22026/Sampling Plans/HASP/S\_Troy\_Brownfields\_HASP\_.txt.doc

**FIGURE 1**

**PREFERRED ROUTE TO THE  
NEAREST EMERGENCY HEALTH CARE FACILITIES**

**APPENDIX A**

**EQUIPMENT CLEANING AND  
DECONTAMINATION PROCEDURES**

## **APPENDIX A**

### **STANDARD OPERATING PROCEDURES (TECHNICAL) STANDARD OPERATING PROCEDURE T-R3**

#### **EQUIPMENT CLEANING AND DECONTAMINATION PROCEDURES**

##### **Summary**

Equipment, tools, materials, etc. used in the investigation and collection of samples at field investigation sites must be properly prepared and cleaned/decontaminated during and after each sampling event. The degree of cleaning/decontamination will be dependent upon site conditions and the nature and type of contamination, if present, the intent and goal(s) of the investigation, and data quality objectives, as well as other site-specific requirements. The importance of this action must be impressed upon the sampling team and those assisting the team, such as a backhoe or drill rig operator.

##### **Procedure**

#### **1. Heavy Equipment Decontamination**

All equipment, tools and materials associated with sampling events must be cleaned or decontaminated prior to usage. Items such as drill rigs, auger flights, trackhoes, and backhoes all present potential sources of contamination to environmental samples. Therefore, all heavy equipment utilized at a site must undergo the following decontamination procedures:

- the equipment will first be high pressure, hot washed or steam-cleaned with potable water; and,
- the equipment will be rinsed thoroughly with potable water.

Contain, collect and dispose of all decontamination fluids in accordance with site/project-specific requirements. The bucket of trackhoes and backhoes may be cleaned over the excavation allowing high pressure decontamination washwater to return to the excavation.

#### **2. Cleaning of Field Sampling Equipment**

All equipment and tools used to collect samples for chemical analyses, including spatulas, spoons, scoops, trowels, split-spoons, augers, etc. will be decontaminated using the following procedures:

- non-phosphate detergent wash;
- potable water or distilled/deionized water rinse; and
- air or oven-dry.

If the equipment is to be stored for future use, allow to dry and then wrap in aluminum foil (shiny-side out) or seal in plastic bags.

Collect or dispose of all decontamination fluids in accordance with site/project-specific requirements.

### **3. Personal Clothing Decontamination**

All footwear worn in and around the contamination area will be washed down using soap and water to remove any soil or oily residue remnants. If disposable gloves, booties or suits (such as Tyvek® suits) are worn, these suits or booties are to be removed and disposed of in a designated 55-gallon drum on site for future disposal. Any other clothing that comes in contact with the potentially contaminated soil should not be worn more than 24-hours and should be washed prior to wearing again.